

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF OKLAHOMA

STATE OF OKLAHOMA, et al.,

Plaintiff,

vs.

CASE NO. 05-CV-00329-GKF-SAJ

TYSON FOODS, INC., et al.,

Defendants.

VIDEOTAPED DEPOSITION OF MARK DERICHWEILER
TAKEN ON BEHALF OF THE DEFENDANTS
ON AUGUST 8, 2008, BEGINNING AT 9:00 A.M.
IN OKLAHOMA CITY, OKLAHOMA

REPORTED BY: Laura L. Robertson, CSR, RPR

1 been designated by the state of Oklahoma as a
2 representative authorized to testify on prior topics,
3 and I think in your, the first of those depositions we
4 spent some time going through your work history. Do
5 you recall that testimony?

6 **A.** Yes.

7 **Q.** And I don't want to repeat it today, but was
8 there anything about your testimony regarding your
9 work history that was incorrect in the prior
10 deposition?

11 **A.** No.

12 **Q.** Okay. And you also provided in that first
13 deposition a document where you summarized the
14 positions you have held during your tenure as an
15 employee of the state of Oklahoma; correct?

16 **A.** Yes.

17 **Q.** And is that document still accurate?

18 **A.** Yes.

19 **Q.** All right. Now, just for purposes so that
20 we can have a complete record in this deposition,
21 would you please identify any -- your higher education
22 post high school degrees received, institutions and
23 years?

24 **A.** I received my BS degree in civil engineering
25 from University of Oklahoma in 1976, and a master's

1 degree in regional and city planning also from the
2 University of Oklahoma in 1981.

3 Q. All right. Do you hold any licenses or
4 certifications?

5 A. I am a Registered Professional Engineer in
6 the state of Oklahoma.

7 Q. And what was the year of your initial
8 registration?

9 A. I believe that was in 1980.

10 Q. Have you been continuously registered since
11 that -- since 1980?

12 A. Yes.

13 Q. And is there a specific classification for
14 your engineering registration?

15 A. There is not. When I became registered, it
16 was just registered engineer, they didn't have areas
17 of specialization or areas of interest, so it was just
18 a general.

19 Q. All right. Now, if you can explain briefly,
20 and I am during the course of this morning,
21 Mr. Derichsweiler, going to try to not ask you to
22 repeat things that we have already gone through,
23 except to the extent that I may need to for a little
24 background.

25 And one of the items of background that I

1 would like you to explain briefly again is how your
2 job function with the Department of Environmental
3 Quality relates to the activities, conditions or
4 programs of the state that are relevant to the
5 Illinois River Watershed?

6 **A.** My section is responsible for compiling the
7 results of water quality monitoring and the
8 assessments of those data compared against Water
9 Quality Standards to identify impaired waters, which
10 are included on the 303(d) list, as it is called for
11 the state, which is included in our biannual, every
12 two year report that we send to EPA.

13 We are also responsible for conducting the
14 TMDLs, Total Maximum Daily Load studies for those
15 impaired waters. We also review activities in
16 surrounding states, including Arkansas, so permits and
17 other things that could be within the watershed as
18 well as in the other surrounding states, those reviews
19 are done by myself.

20 **Q.** All right. Also during the course of the
21 day there's certain lingo or terms that are common in
22 your profession that I think your average citizen may
23 not be familiar with, so I'm going to ask you to
24 identify or explain what some of those mean.

25 So tell us what the 303(d) list is?

1 question, please.

2 A. Okay.

3 Q. Have you formed any expert opinions on
4 whether the land application of poultry litter in the
5 Illinois River Watershed far exceeds the capacity of
6 the soils and vegetation to absorb the nutrients?

7 A. No.

8 Q. All right. Let me ask you to do the same
9 with paragraph 52, please.

10 A. Okay.

11 Q. Have you formed any expert opinions as to
12 whether the land application of poultry litter in the
13 Illinois River Watershed has led to the runoff and
14 release of large quantities of phosphorous or other
15 alleged hazardous substances, pollutants and
16 contaminants from the fields, where the litter was
17 applied to waters in the Illinois River Watershed?

18 A. Yes.

19 Q. All right. Explain that opinion.

20 A. We have conducted studies with looking at
21 the loading of phosphorous within the watershed,
22 poultry waste and litter disposal has been identified
23 as generating large quantities.

24 Q. Of what?

25 A. Phosphorous.

1 **Q.** All right. Now, what is the basis for this
2 opinion?

3 **A.** The water quality studies that we have
4 conducted in the efforts that we have made, the
5 attempts to develop the TMDL for phosphorous in the
6 Illinois River Watershed.

7 **Q.** All right. Let's go through and identify
8 the studies you refer to.

9 **A.** I believe the first one that was done was
10 the Clean Lakes study conducted by the Water Resources
11 Board through Oklahoma State University. We have
12 several reports from Dr. Storm that DEQ was done under
13 contract to DEQ.

14 The studies done by Dynamic Solutions, also
15 under contract to DEQ. And Aquaterra, the
16 subcontractor which we discussed somewhat last time.
17 Those are the primary ones. There have been others
18 that I couldn't cite to you directly right now.

19 **Q.** So in answering my question that was drawn
20 from paragraph 52 when you answered it yes, you are
21 relying on these studies that you just identified for
22 me?

23 **A.** Yes.

24 **Q.** The Clean Lakes study was in the '90s. Do
25 you recall when it was issued?

1 **A.** I believe it was the early '90s.

2 **Q.** Do you recall the specific year?

3 **A.** No.

4 **Q.** Now, you answered a lot of questions about
5 Dr. Storm's work in your prior deposition, so I don't
6 want to repeat all of that, but at the time of your
7 last deposition I believe you testified that you were
8 expecting a revised report from Dr. Storm in June or
9 July. You nodded. Is that a yes?

10 **A.** I believe I did testify to that.

11 **Q.** Okay. What is the status?

12 **A.** We still have not received the report.

13 **Q.** And what is the expected delivery?

14 **A.** I don't have a current estimate. The last
15 discussion I had with Dr. Storm they were having some
16 problems with the coding and some of the model code
17 that they had developed. Still trying to work out the
18 bugs in the model code.

19 **Q.** Has Oklahoma Department of Environmental
20 Quality given Dr. Storm a deadline for his work
21 product?

22 **A.** I believe the contract runs through
23 December.

24 **Q.** What happens if he doesn't deliver by the
25 end date of the contract?

1 identification of loading from poultry litter as
2 opposed to other pasture sources.

3 Q. Now, if you were to appear at the trial of
4 this matter and if you were to offer such an opinion,
5 you would be conveying essentially the conclusions
6 reached by Dr. Storm or the Dynamic Solutions' people;
7 correct?

8 A. Conclusions that I agreed with, yes.

9 Q. You agree with, but that they developed?

10 A. Well, it is in their reports, yes.

11 Q. You may think me tedious, but I'm trying to
12 be clear about when you sat down and work that you
13 conducted, versus when you reviewed the work of
14 others. And I need to be -- I need your testimony to
15 be clear what the bases for your opinion.

16 So I think you have answered the question,
17 and that is when you answered yes when I asked you
18 about expert opinions drawn from the allegations in
19 paragraph 52 that you reviewed the Clean Lakes study,
20 you reviewed Dr. Storm's work, you reviewed the
21 Dynamic Solutions' work, and you think the answer is
22 yes, that there has been a significant loading of
23 phosphorous resulting from the practice of land
24 applying poultry litter?

25 A. Yes.

1 the reports that I have seen that have been done.

2 Q. All right. And I need your answer to match
3 my question. Have you personally formed an expert
4 opinion based upon the guidelines we set at the
5 beginning of the deposition, that the practice of land
6 applying poultry litter has caused the release of
7 significant quantities of bacteria into any waters in
8 the Illinois River Watershed?

9 A. Would you like to run through those again?
10 Or --

11 Q. The criteria?

12 A. Yes.

13 Q. I'll gladly, because it is important that
14 your answer be precise. They have to be -- to be an
15 expert opinion based upon the qualifications I'm
16 placing on that term, you have to be qualified as an
17 expert in that field by virtue of your knowledge,
18 skill, experience, training or education.

19 You have to base that opinion on sufficient
20 facts or data. Your opinion must be based upon
21 reliable principles and methods, and your opinion must
22 be based on an application, a reliable application of
23 those principles to the facts of the case, and you
24 must be able to state that opinion within a reasonable
25 degree of scientific or engineering certainty.

1 Again, that applies to all of my questions.

2 A. I believe my opinion does meet those
3 conditions.

4 Q. And the foundation for that opinion is the
5 work of the experts that have been retained by the
6 Attorney General's office in this case?

7 A. Yes.

8 Q. Have you reviewed the -- let me restate
9 this. With regard to the opinions you're referring
10 to, which of the experts are of the Attorney General
11 are you relying on for the opinion about bacteria?

12 A. I didn't bring any of those reports with me.
13 I don't have the names or any titles memorized.
14 So --

15 Q. What have you reviewed that was -- what have
16 you been provided that relates to the expert opinions
17 of the experts retained by the Attorney General in
18 this case?

19 A. I was given copies of the reports prior to
20 the previous depositions.

21 Q. All right. Have you reviewed any of the
22 analysis underlying the conclusions stated in the
23 reports?

24 A. I'm not sure what you mean.

25 Q. You reviewed -- did you review any work

1 **A.** No.

2 **Q.** Can you specifically identify any human
3 pathogen -- excuse me, any human pathogen found in
4 poultry litter?

5 **A.** No.

6 **Q.** I gather from your work history you're not a
7 microbiologist and don't consider yourself an expert
8 in microbiology, would that be correct?

9 **A.** Yes.

10 **Q.** All right. Let's look at paragraph 59. Are
11 you ready?

12 **A.** Such constituents is referring to the list
13 in paragraph 58? Is that the way I interpret this?

14 **Q.** For the purposes of questioning, assume that
15 it does.

16 **A.** Okay.

17 **Q.** Have you developed an expert opinion as to
18 whether or not lands in the Illinois River Watershed
19 have elevated levels of any constituent listed in
20 paragraph 58?

21 **A.** No.

22 **Q.** Do you have, have you developed an expert
23 opinion as to whether or not waters in the Illinois
24 River Watershed have elevated levels of phosphorous?

25 **A.** Yes.

1 **Q.** All right. And is the first question that
2 would be elevated levels of a phosphorous compound,
3 not elemental phosphorous; correct?

4 **A.** It would not be elemental phosphorous, no.

5 **Q.** All right. Now, the -- let's talk about
6 that. What is the basis for that opinion?

7 **A.** The assessments that we have conducted of
8 the monitoring data as part of preparation of the
9 303(d) list.

10 **Q.** Okay. So that would include information
11 beyond the three studies we talked about earlier this
12 morning, the Clean Lakes study, Dr. Storm's work,
13 Dynamic Solutions. Are you referring to additional
14 information beyond that scope?

15 **A.** Yes.

16 **Q.** All right. Can you be a little more
17 specific what you're referring to?

18 **A.** Well, the preparation of the 303(d) report,
19 which analyzes data collected by the Oklahoma Water
20 Resources Board, U.S. Geological Survey, the Oklahoma
21 Conservation Commission, and I believe we may have had
22 some data from the Cherokee Nation within the Illinois
23 River Watershed.

24 **Q.** All right. The way this is phrased, rather
25 broadly in paragraph 59, it says waters in the

1 Oklahoma's Water Quality Standard, which is ten
2 milligrams per liter.

3 Q. All right. Is that the only one?

4 A. That's the only one I recall.

5 Q. And I believe from your prior testimony, you
6 mentioned the same stream segment and that your
7 opinion, DEQ's opinion, is that this nitrate level is
8 directly associated with the point source discharged
9 from Siloam Springs?

10 A. That's correct.

11 Q. All right. Have you formed an opinion, an
12 expert opinion as to whether there are elevated levels
13 of arsenic or arsenic compounds within the waters of
14 the Illinois River Watershed?

15 A. No.

16 Q. Same question for zinc or zinc compounds?

17 A. No.

18 Q. Same question for copper or copper
19 compounds?

20 A. No.

21 Q. Same question for hormones?

22 A. No.

23 Q. Same question for microbial pathogens?

24 A. Yes.

25 Q. Which pathogens?

1 biota in the Illinois River Watershed have been
2 injured from any source?

3 A. No.

4 Q. Have you formed an expert opinion as to
5 whether or not the lands in the Illinois River
6 Watershed have been injured as a result of the
7 practice of land applying poultry litter?

8 A. No.

9 Q. Do you have an expert opinion as to whether
10 lands in the Illinois River Watershed have been
11 injured as a result of any other source?

12 A. No.

13 Q. Have you formed any expert opinion as to
14 whether or not water in the Illinois River Watershed
15 has been injured as a result of the practice of the
16 land application of poultry litter?

17 A. Yes.

18 Q. All right. State that opinion.

19 A. I believe poultry litter is responsible for
20 the majority of the loading of phosphorous to Lake
21 Tenkiller which has damaged the water in Lake
22 Tenkiller.

23 Q. Is that it?

24 A. Could you restate the question?

25 Q. The question was, I asked you to state

1 specifically what your -- what opinions you hold with
2 regard to whether or not water in the Illinois River
3 Watershed have been injured as a result of the
4 practice of land applying poultry litter?

5 A. I believe poultry litter is also a
6 contributor to the phosphorous levels and the bacteria
7 levels in the streams, which have also violated the
8 Water Quality Standards.

9 Q. All right. The first part of your answer a
10 moment ago, you said you believed poultry litter was
11 responsible for a majority of the loading to Lake
12 Tenkiller, but I wasn't sure I heard you say the
13 loading of what?

14 A. Phosphorous.

15 Q. All right. Let's start with that.
16 Phosphorous loading to Lake Tenkiller. Describe for
17 me the -- what you're relying on as the basis for that
18 opinion.

19 A. Again, the loading estimates that have been
20 made in the watershed studies that we have conducted
21 with the reports that we have referred to previously
22 from Dynamic Solutions, from Dr. Storm. The report
23 that was done by the Water Resources Board.

24 Q. Identify that report.

25 A. The Clean Lakes study, which was done by

1 Oklahoma State University under contract to the Water
2 Resources Board.

3 Q. What else?

4 A. Those are the three major studies. There
5 have been others.

6 Q. I need you to identify them, please. If
7 you're telling me you're relying on them, I need to
8 know what you're relying on?

9 A. I can't identify them specifically today.

10 Q. All right. When you say litter is
11 responsible for the majority of the phosphorous
12 loading, explain what you mean by the majority of
13 phosphorous loading?

14 A. On an annual basis, the mass loading to the
15 lake.

16 Q. All right. Explain the basis for using the
17 term majority.

18 A. I'm not sure what you mean by the question.

19 Q. Well, as an engineer, if you're going to
20 state an engineering opinion that something is the
21 majority, I assume then you quantify it relative to
22 the total; is that true?

23 A. True.

24 Q. All right. Then state your opinion as to
25 what the majority of phosphorous loading to Lake

1 Is that still --

2 **A.** I think you asked me to explain what I meant
3 by that, and I think I said, we can ask her to read it
4 back, but I think I said that it was more than any
5 other particular source.

6 **Q.** Okay. So you're saying that of the sources
7 you have evaluated in your opinion litter is the
8 largest?

9 **A.** Let me revise that from majority to the
10 primary, or the largest contributor.

11 **Q.** Okay. All right. That's fine. Any time
12 you want to correct, so that's no problem. All right.

13 Then let's be clear, the basis, your basis
14 for saying it is the primary source is again based
15 upon the Clean Lakes study, Dr. Storms' work and
16 Dynamic Solutions' work, anything else?

17 **A.** Those are the three major sources, yes.

18 **Q.** All right. Tell me, if you could, provide
19 for me, if you're saying that poultry litter is the
20 primary source, let's list all of the sources that you
21 have evaluated in developing your expert opinion.

22 **MR. NANCE:** Object to the form.

23 **THE WITNESS:** Loading from point sources,
24 from forest lands, from urban areas, from crop lands.
25 These are just general categories. There are

1 list of sources which were utilized in modeling
2 performed; correct?

3 A. Yes.

4 Q. Okay. Did we exhaust your list, point
5 sources, forest, urban, crop, other non-point source,
6 that's what I have heard thus far?

7 A. I believe so.

8 Q. All right. Of point sources, forest, urban,
9 crop and other non-point sources, among those, can you
10 rank them?

11 A. Not right now, no.

12 Q. And what I meant rank, just so I'm sure you
13 understood my question, what I meant rank, I meant
14 from highest annual loading as number one to the
15 lowest. Is that how you understood my question?

16 A. Uh-huh. No.

17 Q. Now, you have not performed your own
18 engineering evaluation of the question as to what
19 degree of, if any, poultry litter is the contributor
20 of phosphorous to waters in the Illinois River
21 Watershed? You have reviewed the work of others?

22 A. That's correct.

23 Q. Now, the Clean Lakes report is, if it was in
24 the early '90s, could be as much as 15 years old, 14,
25 15 years old. To what extent are the conclusions

1 drawn in that report valid today, if you know?

2 A. I don't think they made any attempt to
3 project 15 years into the future. So they were valid
4 at the time the study was done.

5 Q. Are you aware in the city of Tulsa case that
6 the federal -- you were aware that city of Tulsa sued
7 certain poultry companies?

8 A. Yes.

9 Q. Were you aware that Dr. Storm worked for the
10 city of Tulsa as a retained expert in that case?

11 A. Yes.

12 Q. Are you aware of any rulings that the
13 federal judge made with regard to Dr. Storm's modeling
14 work in that case?

15 A. I have not read any of the court rulings,
16 just what was in the general newspapers.

17 Q. Tell me what you know.

18 MR. NANCE: Object to the form. Ambiguous,
19 tell me what you know.

20 Q. (BY MR. MCDANIEL) With regard to the
21 court's orders with Dr. Storm's work.

22 MR. NANCE: Okay.

23 MR. MCDANIEL: Thank you for making me a
24 better lawyer, Bob. Go ahead.

25 THE WITNESS: The case was eventually

1 **A.** I don't know exactly what changes he's made,
2 but I do believe that he's made changes as a response
3 to comments that were made on his work for the Eucha
4 modeling exercise.

5 **Q.** Are you certain of that, sir, as you sit
6 here today?

7 **A.** I believe that to be the case, yes.

8 **Q.** Now, with regard to your opinion, state
9 specifically what your opinion is with regard to
10 whether or not waters in the Illinois River exhibit
11 bacteria as a result of the land application of
12 poultry litter.

13 **A.** Again, I would say this is a general opinion
14 based on the work that I have seen that was done by
15 the experts for the Attorney General's office. We
16 have not conducted studies to look at whether the
17 magnitude of the poultry litter contributions compared
18 to others, as we have for phosphorous.

19 **Q.** Okay. So with regard to bacteria, you can't
20 state that it is the principle or majority or --
21 excuse me, let me rephrase that. Badly worded. With
22 regard to bacteria, you cannot offer an engineering
23 opinion that poultry litter is the primary source of
24 bacteria in waters in the Illinois River; right?

25 **A.** No, I'm not prepared to quantify it.

1 Q. Okay. Have you seen any work by any other
2 scientist that has attempted to quantify the extent to
3 which poultry litter is alleged to be the source of
4 bacteria in the waters in the Illinois River
5 Watershed?

6 A. I don't believe so.

7 Q. Now, with regard to your opinions about
8 bacteria, I think this takes us back to where we
9 talked maybe an hour or so ago, your opinions are from
10 reviewing an expert report prepared by an expert
11 retained by the Attorney General's office; correct?

12 A. Correct.

13 Q. Not through any independent engineering
14 evaluation that you conducted?

15 A. Correct.

16 Q. Let's look at paragraph 61, please,
17 Mr. Derichsweiler. Ready?

18 A. Again, we don't have Exhibit 4, I'm
19 assuming, as well?

20 Q. Have you personally formed any expert
21 opinion as to the cause or causes of the
22 eutrophication of Lake Tenkiller?

23 A. Yes.

24 Q. All right. State that opinion or opinions.

25 A. I believe it is due to excessive phosphorous

1 loading to the lake.

2 Q. All right. This may sound circular, but if
3 you're saying it is from excess phosphorous, have you
4 developed yourself, sir, an expert opinion as to the
5 source or sources of that excess phosphorous?

6 A. Well, I think we just discussed the sources,
7 but based on those same studies, I would have the same
8 opinion. There are several sources, but I believe
9 poultry litter is the largest source.

10 Q. Tell me what you mean when you say excess
11 phosphorous.

12 A. Well, as it is stated here, phosphorous
13 sufficient to cause an overabundance of algae which
14 results in the elevated chlorophyll a values we
15 discussed, the elevated trophic state index and
16 depleted oxygen in the lower levels of the lake.

17 Q. Just so we can set the stage, you're not a
18 limnologist; correct?

19 A. I'm not a limnologist.

20 Q. Would you agree or do you have an expert
21 opinion as to whether reservoirs created by the
22 damming of the natural stream all tend to become
23 eutrophic over time?

24 A. Eutrophication is a natural process, yes.

25 Q. All right. And do you have an opinion as to

1 whether the state of eutrophication of Lake Tenkiller
2 is inappropriate for its age?

3 A. I believe it is accelerated, yes.

4 Q. By what degree?

5 A. I wouldn't quantify it. I can't quantify
6 it.

7 Q. Well, how -- Lake Tenkiller was created
8 when?

9 A. I don't have that date.

10 Q. It was in the '50s, though, do you agree?

11 A. I don't know.

12 Q. Don't know? Well, then how can you make the
13 statement that you think it is accelerated if you
14 don't know how old the lake is?

15 A. It is an ongoing process.

16 Q. Well, tell me what accelerated means,
17 Mr. Derichsweiler, faster than what?

18 A. There is a discrimination between natural
19 eutrophication and cultural eutrophication.
20 Eutrophication as a process is a natural process.
21 There is -- so it would be accelerated over natural
22 conditions due to inputs from human activities.

23 Q. Do natural conditions based upon your
24 definition assume there is no human population or
25 activity within the watershed feeding the lake,

1 reservoir, excuse me?

2 **A.** I don't know that you would assume that
3 there are no human activities.

4 **Q.** Well, these are your words. I'm trying to
5 have you tell me what your words mean. If it is
6 accelerated over natural conditions, what are the
7 criteria for natural conditions?

8 **A.** I think in general, that would be considered
9 conditions in the absence of human activities, yes.

10 **Q.** All right. So the fact that we have got
11 somewhere between two and 300,000 people living in
12 this watershed is a factor in accelerating the rate of
13 eutrophication over what would have been the rate had
14 no people lived in this watershed; true?

15 **A.** Yes.

16 **Q.** Okay. Now, can you identify the extent to
17 which eutrophication has been accelerated solely
18 resulting from the practice of land applying poultry
19 litter in the Illinois River Watershed?

20 **A.** No.

21 **Q.** Now, your prior testimony that
22 eutrophication is from excess phosphorous, the basis
23 for that statement, does that return us back to the
24 testimony you have already given, that is the
25 watershed studies by Dr. Storm, Dynamic Solutions and

1 the Clean Lakes study?

2 A. Yes.

3 Q. The state of eutrophication of Lake
4 Tenkiller, how does it compare within the context of
5 all of the lakes and reservoirs in the state of
6 Oklahoma? Is it one of the better ones, one of the
7 worst ones, in the middle of the pack?

8 A. Well, I'm not prepared to quantify exactly
9 where it would be, but I think it would be in the,
10 towards the worst end of the scale, not the better end
11 of the scale.

12 Q. So you think Lake Tenkiller is one of the
13 worst lakes in Oklahoma, is that your opinion?

14 A. I think it is towards the worst end of the
15 scale.

16 Q. Okay.

17 A. I don't know how far -- I'm sorry.

18 Q. What is the scale? What does that mean?

19 A. Good to bad, better to worst. I can't
20 quantify it, I'm just saying generally.

21 Q. Oklahoma has a lot of eutrophic and
22 hypereutrophic lakes and reservoirs, doesn't it?

23 A. Yes.

24 Q. Oklahoma has very few non-eutrophic lakes
25 and reservoirs; correct?

1 **Q.** And your basis for saying that returns us
2 back to the same information we have discussed
3 previously, the Dr. Storm's work, Dynamic Solutions'
4 work and the Clean Lakes study; true?

5 **A.** Correct.

6 **Q.** Now, your opinions, what specific work have
7 you conducted to form your engineering opinion that
8 phosphorous from poultry litter has contributed to the
9 use of Lake Tenkiller as a drinking water source?

10 **A.** I have not conducted any studies independent
11 of the ones we have already mentioned.

12 **Q.** To what extent, or can you describe for me
13 what engineering work you have performed to come to
14 the conclusion that poultry litter utilization in the
15 Illinois River Watershed is responsible for a
16 degradation in the aesthetics of waters in the
17 Illinois River Watershed?

18 **A.** I have not conducted any studies independent
19 from the ones that we have already mentioned.

20 **Q.** And is it the same answer with regard to
21 dissolved oxygen?

22 **A.** Yes.

23 **Q.** With regard to dissolved oxygen, what is --
24 what would one expect with a reservoir as deep as Lake
25 Tenkiller? How deep into the water column would you